WHAT IS CLAIMED IS:

1. A discharge circuit for a pulsed gas laser system, comprising:

a pair of electrodes;

a capacitance coupled to a first electrode of said pair of electrodes, said capacitance configured to store charge; and

a load coupled between said first electrode and said capacitance

2. The circuit of claim 1 wherein said load includes a resistor.

3. The circuit of claim 2 wherein said resistor has a value comparable to a wave impedance of said discharge circuit.

4. The circuit of claim 2 wherein said resistor has a value comparable to an active impedance of the gas discharge during a maximum discharge current phase.

5. The circuit of claim 1 further including a cooling unit, said load provided in said cooling unit.

6. The circuit of claim 5 wherein said cooling unit is provided in a pulsed power module of a laser system.

7. The circuit of claim 5 wherein said cooling unit includes one of an air fan and an encapsulated volume with circulating oil.

8. The circuit of claim 1 wherein an area between said pair of electrodes defines a gas discharge area.

9. The circuit of claim 8 wherein said gas discharge area is configured to provide ionization of a laser gas during the charging of said capacitance.

10. The circuit of claim 1 wherein said capacitance includes a peaking capacitor.

11. The circuit of claim 1 wherein said pair of electrodes, said capacitance and said load form an electrical loop.

12. The circuit of claim 1 wherein said load includes an active load.

13. The circuit of claim 1 further including a power generator configured to provide power to said capacitance for charging said capacitance.

14. The circuit of claim 13 wherein said power generator includes a high voltage pulsed power generator.

15. The circuit of claim 1 further including a ground terminal coupled to said capacitance.

16. A discharge circuit, comprising:

a pair of discharge electrodes, a region between said pair of electrodes defining a gas discharge region;

a peaking capacitor coupled to said pair of discharge electrodes, said peaking capacitor configured to store charge;

a resistor coupled between a first electrode of said pair of discharge electrodes and said peaking capacitor; and

a ground terminal coupled to said peaking capacitor and a second electrode of said pair of discharge electrodes;

wherein said pair of discharge electrodes, said peaking capacitor and said resistor form an electrical loop.

17. The circuit of claim 16 further including a cooling unit for cooling said resistor.

18. The circuit of claim 1 further including a high voltage pulsed generator configured to provide power to said peaking capacitor.

19. The circuit of claim 16 wherein said gas discharge area includes high pressure laser gas.

20. The circuit of claim 16 wherein said resistor provides an active load between said peaking capacitor and said another one of said pair of discharge electrodes.

21. A discharge circuit for use in a laser system , comprising:

a pair of discharge electrodes, an area between said pair of electrodes defining a gas discharge area;

a first peaking capacitance coupled to said electrodes, said first capacitor configured to store charge;

a second peaking capacitance different from said first peaking capacitance coupled to one of said pair of electrodes, said second capacitor configured to store charge;

a resistor coupled between said second peaking capacitance and one of said pair of discharge electrodes ; and

a ground terminal coupled to said first and second peaking capacitors;

wherein said pair of discharge electrodes, said first and second peaking capacitors and said resistor form an electrical loop.

22. The circuit of claim 21 further including a cooling unit for cooling said resistor.

23. The circuit of claim 21 further including a high voltage pulsed generator configured to provide power to said first and second peaking capacitors.

24. The circuit of claim 21 wherein said gas discharge area includes high pressure laser gas.

25. A method of providing a discharge circuit for a pulsed gas laser system, comprising the steps of:

providing a pair of electrodes;

coupling a capacitance to one of said pair of electrodes, said capacitance configured to store charge; and

coupling a load between said another one of said pair of electrodes and said capacitance.

26. The method of claim 25 wherein said load includes a resistor.

27. The method of claim 26 wherein said resistor has a value comparable to a wave impedance of said discharge circuit.

28. The method of claim 26 wherein said resistor has a value comparable to an active impedance of the gas discharge during a maximum discharge current phase.

29. The method of claim 25 further including the step of providing cooling said load.

30. The method of claim 29 wherein said step of cooling includes the step of providing either an air fan or an encapsulated volume with circulating oil.

31. The method of claim 25 further including the step of defining an area

between said pair of electrodes as a gas discharge area.

32. The method of claim 31 further including the step of providing ionization of a laser gas in said gas discharge area during the charging of said capacitance.

33. The method of claim 25 wherein said pair of electrodes, said capacitance and said load form an electrical loop.

34. The method of claim 25 further including the step of charging said capacitance.

35. The method of claim 34 wherein said step of charging includes the step of providing a high voltage pulsed power generator.

36. The method of claim 1 further including the step of coupling a ground terminal to said capacitance.

37. A method of providing a discharge circuit, comprising the steps of:

defining an area between a pair of electrodes a gas discharge area;

coupling a peaking capacitor to one of said pair of discharge electrodes, said peaking capacitor configured to store charge;

coupling a resistor between said another one of said pair of discharge electrodes and said peaking capacitor; and

coupling a ground terminal to said peaking capacitor and said one of said pair of discharge electrodes;

wherein said pair of discharge electrodes, said peaking capacitor and said resistor form an electrical loop.

38. A method of providing a discharge circuit for use in a laser system,

comprising the steps of:

providing a pair of discharge electrodes, an area between said pair of electrodes defining a gas discharge area;

coupling a first peaking capacitor to said pair of electrodes, said first capacitor configured to store charge;

coupling a second peaking capacitor to one of said pair of electrodes, said second capacitor configured to store charge;

coupling a resistor between said second peaking capacitor and said one of said pair of discharge electrodes; and

coupling a ground terminal to said first and second peaking capacitors;

wherein said paid of discharge electrodes, said first and second peaking capacitors and said resistor forming an electrical loop.

39. An excimer or molecular fluorine laser, comprising:

a discharge chamber filled with a gas mixture including a halogen component;

a pulsed discharge circuit;

a plurality of electrodes including a pair of main discharge electrodes and at least one preionization electrode, said plurality of electrode connected to the pulsed discharge circuit for energizing the gas mixture; and

a resonator for generating a laser beam,

wherein the pulsed discharge circuit comprises:

a main storage capacitor;

a pulse compression circuit;

a set of peaking capacitors between the pulse compression circuit and the main discharge electrodes; and

a resistive component coupled between the set of peaking capacitors and the discharge electrodes.

40. The laser of Claim 39, further comprising a second set of peaking

capacitors between the pulse compression circuit and main discharge electrodes.

41. The laser of Claim 40, wherein a first electrical connection between the first set of peaking capacitors and the discharge electrodes has a different inherent inductance than a second electrical connection between the second set of peaking capacitors and the discharge electrodes.

42. The laser of Claim 39, wherein the resistive component includes a resistor.

43. The laser of Claim 39, wherein the resistive component includes a resistor and a variable inductor.

44. The laser of Claim 39, wherein the resistive component is coupled in series between the set of peaking capacitors and the discharge electrodes.

45. The laser of Claim 39, wherein the resistive component is coupled in parallel with the set of peaking capacitors.

46. A method for providing an electrical pulse to discharge electrodes of an excimer or molecular fluorine laser, comprising the steps of:

charging a main storage capacitor of a pulsed gas discharge excitation laser system;

discharging the main storage capacitor through a pulse compression circuit to a peaking capacitance coupled with the discharge electrodes as an electrical pulse; and

dissipating the energy of the electrical pulse through the discharge electrodes and an additional load coupled between the peaking capacitance and discharge electrodes,

wherein the dissipation through the additional load stabilizes the current through the discharge electrodes.

47. The method of Claim 46, wherein the discharging step includes discharging the main capacitor through a first peaking capcitance and a second peaking capacitance, wherein, of the first and second peaking capacitances, the additional load is coupled only between the first peaking capacitance and the discharge electrodes.

48. The method of Claim 46, wherein the additional load is coupled in series between the peaking capacitance and the discharge electrodes.

49. The method of Claim 46, wherein the additional load is coupled in parallel with the peaking capcitance.